

Applicants respectfully submit that the application amply describes the claimed method for control and maintenance of an operational structure and clearly and fully describes the computer hardware and software to enable a person skilled in the art to make and use the claimed invention without undue experimentation. In other words, the specification and drawings set forth in a clear, concise and exact manner apparatus that can be used to “electronically” practice the claimed invention. For example, Applicants refer the Examiner to page 1, lines 19-24 and page 2, lines 2-7 of Applicants’ specification for a description of how the claimed invention may be applied in a computer system using electronic data and electronic transactions. Further, Applicants refer the Examiner to, for example, page 2, lines 16-20, page 4, lines 12-22, page 11, lines 15-22, page 15, line 10 to page 16, line 2, page 18, lines 3-6, page 19, lines 8-19 and the drawings for description and explanation of how the claimed invention may be implemented using computer hardware and software. With the teachings in the application, such as the state and flow diagrams, the associated disclosure in the specification and the specific description of applicable computer technology in the specification, a person skilled in the art should be able, without undue experimentation, to make and use the claimed invention, in particular to “electronically” practice the claimed invention.

Examiner further argues that “any subject matter illustrating how the method for control and maintenance may be implemented electronically are critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure.” At the outset, Applicants respectfully submit that the Examiner has failed to specify the subject matter that is “critical or essential” or provided any specific reasoning sufficient as a proper basis for this rejection. *See, e.g., In re Armbruster*, 185 USPQ 152 (CCPA 1975), *In re Lee*, 61 USPQ2d 1430 (Fed. Cir. 2002). Notwithstanding the insufficiency of the rejection, Applicants submit that the specific subject matter illustrated in the specification and drawings to implement the claimed method electronically are not critical or essential to the practice of the claimed invention. As would be appreciated by anyone skilled in the art, any computer hardware, computer software, or combination thereof may be used to practice the claimed method.

Therefore, for at least the above reasons, Applicants submit that claim 1 is patentable under 35 U.S.C. §112, first paragraph. Thus, the rejection of claim 1 is traversed and claim 1 is allowable.

**Rejection under 35 U.S.C. §102(b)**

Further, the Final Office Action maintains the rejection of claims 1-10, 13-39, 41-44, 47-57, 59 and 61-63 under 35 U.S.C. §102(b) as being unpatentable over Lampson et al., “Authentication in Distributed Systems: Theory and Practice”, ACM Transactions on Computer Systems, Vol. 10, No. 4, Nov. 1992, pgs. 265-310. Applicants respectfully traverse the rejection because the teachings of Lampson et al. fail to disclose, teach or suggest all the features in the rejected claims.

**Independent Claim 1**

As noted in Applicants’ specification, cryptographic representation of an organization has typically been defined statically, for a given time. But, such representation has limits especially in organizations facing structural or dynamic changes. Thus, Applicants’ invention of claim 1 relates to control and maintenance of an operational organizational structure to solve, for example, management of dynamic organizations which often can face significant structural changes. To facilitate this control and maintenance, Applicants’ method of claim 1 associates entities with cryptographic capabilities and organizes the entities within the organizational structure as roles. The claimed method further maintains (i.e., changes, updates, etc.) the roles within the organizational structure.

The Examiner argues that the Lampson et al. theory of authentication and the system that implements it “is the ‘method’ in which a system in which an operational organization structure is controlled, where the operational structure is the structure of the authentication system that needs to be maintained as disclosed by Lampson et al.” If the Examiner’s position is that the operational organizational structure as claimed corresponds to the “structure of the authentication system” as disclosed by Lampson et al., then Applicants respectfully submit that Lampson et al. fail to disclose, teach or suggest any method for “control” and “maintenance” of that structure. Lampson et al. appears to merely disclose a static

authentication system and the control that is discussed by Lampson et al. is traditional access control provided within such an authentication system.

If the Examiner's position is that the operational organizational structure as claimed corresponds to the one or more principals acting within the authentication system disclosed in Lampson et al., then Applicants respectfully submit that Lampson et al. fail to disclose, teach or suggest any method for "control" and "maintenance" of those one or more principals. Lampson et al. merely disclose principals communicating with each other and a system that facilitates authentication of one principal to another. Lampson et al. do not disclose, teach or suggest controlling and maintaining those principals. Specifically, there is no disclosure, teaching or suggestion by Lampson et al. regarding a method to maintain principals in an operational organizational structure. Further, to the extent the operational organizational structure as claimed includes a certification authority, Applicants respectfully submit that Lampson et al. also fail to disclose, teach or suggest any method for "control" and "maintenance" of a certification authority. Specifically, there is no disclosure, teaching or suggestion by Lampson et al. regarding a method to control a certification authority in an operational organizational structure. Indeed, the failure to disclose, teach or suggest control over a certification authority in Lampson et al. is supported by the disclosure in Lampson et al. that their system can have certification authorities off-line. *See* page 278 of Lampson et al.

The Examiner further argues that the "roles that Lampson et al. discusses are roles for principals, where principals themselves are 'entities'." Applicants respectfully submit, however, that this argument does not address how Lampson et al. discloses, teaches or suggests organizing entities within an organization structure as roles, entities which have associated cryptographic capabilities. While Lampson et al. discloses principals – entities in terms of the claimed method – having roles, Lampson et al. fail to disclose, teach or suggest any method for organizing principals within an organizational structure, let alone organizing those principals with roles. The roles of principals discussed in Lampson et al. appear to be predetermined and supplied to the authentication system of Lampson et al. *See, e.g.,* p. 268 of Lampson et al. as cited by the Final Office Action. Thus, Lampson et al. simply do not describe a method to structure or organize entities, entities which have associated cryptographic capabilities, within an organizational structure as roles as recited in claim 1.

Additionally, Examiner failed to respond to Applicants' additional argument that Lampson et al. fail to disclose, teach or suggest maintaining roles within the organizational structure. As noted above, while the authentication system of Lampson et al. may be applied to an organization, Applicants submit there is no disclosure, suggestion, or teaching by Lampson et al. how their system or its operation can or does maintain (i.e., update, change, etc.) roles within an organizational structure. Rather, the Lampson et al. system and its operation merely facilitates secure communication using principals as roles. *See, e.g.*, p. 268 of Lampson et al.

Therefore, Applicants respectfully submit that Lampson et al. fail to at least disclose, teach or suggest a "method for control and maintenance of an operational organizational structure," comprising "associating entities with cryptographic capabilities", "organizing entities within the organizational structure as roles", and "maintaining roles within the organizational structure" as recited in independent claim 1 and its dependent claims 1-4, 6-10, and 13-15.

#### Independent Claim 16

With respect to independent claim 16 and its dependent claims 17-39, 41-44, and 47-51, the Examiner has not specifically responded to the arguments made in Applicants' Amendment filed March 29, 2004. Thus, the Examiner has failed to identify specific reasons why Applicants' arguments are not persuasive and why these claims are not allowable in view of those arguments and Lampson et al. Accordingly, Applicants submit that the Examiner has failed to provide the specific reasoning sufficient for a proper basis for this rejection. *See, e.g.*, *In re Armbruster*, 185 USPQ 152 (CCPA 1975), *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002) ("obligation of the agency to make the necessary findings and to provide an administrative record showing the evidence on which the findings are based, accompanied by the agency's reasoning in reaching its conclusions"). The Examiner's conclusory statement that Applicant's arguments were considered and found not persuasive is inadequate and the Examiner's reasoning regarding independent claim 1 and its dependent claims are inapposite.

Therefore, Applicants re-submit that Lampson et al. fail to disclose, teach or suggest any type of "system for control and maintenance of an operational structure" as recited in

claim 16. Rather, Lampson et al. is directed to a security system, particularly an authentication system.

Further, Applicants resubmit that Lampson et al. provides no disclosure regarding “maintaining capabilities of entities”, such as a role in an organization (*see, e.g.*, claim 19), “maintaining functions of entities”, such as an operation by a functionary in an organization (*see, e.g.*, claim 22), “maintaining characteristics of entities”, such as an entity’s size, threshold for a quorum, or visibility (*see, e.g.*, page 21 of the specification) or “maintaining relationships of entities”. As discussed above in respect of claim 1, while the authentication system of Lampson et al. may be applied to an organization, Applicants submit there is no disclosure, suggestion, or teaching by Lampson et al. how their system or its operation can or does maintain capabilities, functions, characteristics and relationships of entities within organizations as recited in claim 16. Rather, the Lampson et al. system and its operation merely facilitates secure communication.

Applicants also resubmit that Lampson et al. fail to provide any disclosure, teaching or suggestion regarding “changing the maintained said entities said characteristics and said relationships” as recited in claim 16. While the Lampson et al. authentication system may be applied to an organization, all relevant data about such organization is merely supplied to and used by the authentication system of Lampson et al. There simply appears to be no disclosure, teaching or suggestion regarding changing maintained entities, characteristics and relationships within an organization. Applicants submit the discussions at pgs. 271-274 of Lampson et al. (as cited by the Final Office Action) regarding statements is inapposite. There, Lampson et al. set forth how they propose to handle statements in their system for the purposes of authentication. For example, they address how to handle circumstances where one principal makes a statement on behalf of another principal. There is no indication or suggestion of any sort that the statements referenced in Lampson et al. perform any type of changing maintained entities, characteristics and relationships within an organization. Lampson et al. merely discuss how to handle authentication of statements.

Accordingly, the teachings of Lampson et al. fail to at least disclose, teach or suggest a “system for control and maintenance of an operational structure” comprising “maintaining capabilities of entities”, “maintaining functions of entities”, “maintaining characteristics of entities”, “maintaining relationships of entities”, and “changing the maintained said entities

said characteristics and said relationships” as recited in independent claim 16 and its dependent claims 17-39, 41-44, and 47-51.

Independent Claim 52

With respect to independent claim 52 and its dependent claims 53-57, 59 and 61-63, the Examiner has not specifically responded to the arguments made in Applicants’ Amendment filed March 29, 2004. Respectfully, the Examiner has failed to identify specific reasons why Applicants’ arguments are not persuasive and why these claims are not allowable in view of those arguments and Lampson et al. Accordingly, Applicants submit that the Examiner has failed to provide the specific reasoning sufficient for a proper basis for this rejection. *See, e.g.*, In re Armbruster, 185 USPQ 152 (CCPA 1975), In re Lee, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002) (“obligation of the agency to make the necessary findings and to provide an administrative record showing the evidence on which the findings are based, accompanied by the agency’s reasoning in reaching its conclusions”). Examiner’s conclusory statement that Applicant’s arguments were considered and found not persuasive is inadequate and Examiner’s reasoning regarding independent claim 1 and its dependent claims are inapposite.

Therefore, Applicants re-submit that Lampson et al. disclose a security system. In an embodiment, the system of Lampson et al. may make use of a certification authority as is well known. With respect to such a certification authority, Lampson et al. disclose the traditional methods of key and certificate management (including issuance, revocation, etc.). *See, e.g.*, Lampson et al., pgs. 283-285. For secure communication, the Lampson et al. system simply relies on, for example, checking the integrity (e.g., expiry) of the certificates themselves or checking certificate revocation lists but does not address, for example, the basic issue of the proper association of an entity to a cryptographic capability. Thus, Applicants submit that Lampson et al., particularly at pg. 270, do not disclose, teach or suggest a maintenance system by which the database, representing entities of an organization and their characteristics, roles and relationships, and the cryptographic authorities are maintained in coordination and by authorized parties assuring the representation of the organization and such that the cryptographic capabilities are soundly associated as recited in claim 52.

Further, Applicants re-submit that Lampson et al. do not disclose, teach or suggest maintenance transactions acting within said maintenance system, maintaining a view representing an organization as recited in claim 52. As discussed above, Lampson et al. do not disclose any sort of maintenance system. Moreover, Lampson et al. do not disclose maintaining any sort of view representing an organization. Page 270 of Lampson et al. merely discloses gathering of information and using algorithms to check whether to grant access. Applicants submit that there is just no indication that the gathering and checking corresponds to maintaining a view representing an organization.

Accordingly, the teachings of Lampson et al. fail to at least disclose, teach or suggest a system comprising “a maintenance system by which said database and said cryptographic authorities are maintained in coordination and by authorized parties assuring the representation of said organization and said cryptographic capabilities are soundly associated as defined by the coordination directives” and “maintenance transactions acting within said maintenance system, maintaining a view representing an organization” as recited in independent claim 52 and its dependent claims 53-57, 59 and 61-63.

Therefore, for at least the above reasons, Lampson et al. fail to disclose, suggest or teach all the features of claims 1-10, 13-39, 41-44, 47-57, 59 and 61-63, which claims are thus at least patentable under 35 U.S.C. §102 and 35 U.S.C. §103. The rejection of claims 1-10, 13-39, 41-44, 47-57, 59 and 61-63 is traversed and claims 1-10, 13-39, 41-44, 47-57, 59 and 61-63 are allowable.

#### **Rejection under 35 U.S.C. §103(a)**

Furthermore, the Final Office Action rejected claims 11, 12, 40, 45-46, and 58 under 35 U.S.C. §103(a) as being obvious over Lampson et al. and rejected claim 60 under 35 U.S.C. §103(a) as being obvious over Lampson et al. in view of the Unified Modeling Language Version 1.0 (January 13, 1997) (“UML specification”). As Applicants submit above that independent claims 1, 16, and 52 are novel and non-obvious in view of Lampson et al., Applicants accordingly submit that claims 11, 12, 40, 45-46, 58 and 60, which respectively are directly or indirectly dependent from independent claims 1, 16 and 52, are therefore not obvious. Further, the UML specification, on its own or in combination with

Lampson et al. plainly fails to provide any disclosure, teaching or suggestion regarding independent claims 1, 16 and 52, let alone dependent claim 60. Thus, for at least the above reasons, Lampson et al. fail to disclose, suggest or teach all the features of claims 11, 12, 40, 45-46, and 58 and Lampson et al. in combination with the UML specification fail to disclose, suggest or teach all the features of claim 60. Thus, the rejection of claims 11, 12, 40, 45-46, 58 and 60 is traversed and claims 11, 12, 40, 45-46, 58 and 60 are allowable.

### **Response to Advisory Action**

Applicants reiterate for the purposes of the Advisory Action all the submissions made above in respect of the rejections of the Final Office Action and make the following additional submissions.

With respect to the rejection of claim 1, Examiner argues that the certification authority system disclosed on pages 283-286 of Lampson et al. demonstrates interaction of a certification authority with its entities and thus Lampson et al. disclose and teach control and maintenance of an operational organizational structure as recited in claim 1. Examiner further argues that the disclosure in Lampson et al. of “Principals in roles” and “Abadi as Manager” discloses and teaches organizing entities within the organizational structure as roles.

At the outset, Applicants submit again that Lampson et al. fail to disclose, teach or suggest “maintaining roles within the organizational structure” as recited in claim 1 and as discussed in Applicants’ Amendment filed March 29, 2004 and Applicants’ Response filed September 17, 2004, arguments to which Examiner has failed to respond or acknowledge in the Final Office Action and the Advisory Action. Prior art must disclose or teach a claim as a whole. Applicants respectfully submit that Examiner has not considered claim 1 as a whole by ignoring the part of “maintaining roles within the organization structure” recited in claim 1 and thus a prima facie case of unpatentability has not been established.

Further, to the extent that the certification authority system in Lampson et al. may be the operational organizational structure as recited in claim 1, the Examiner fails to explain how Lampson et al. discloses electronically organizing entities within the certification authority system as roles and maintaining the roles within the certification authority system. Lampson et al. merely discloses a certification authority that issues cryptographic certificates



for entities. Further, Lampson et al. separately discloses that principals may have roles. However, Applicants respectfully submit that Lampson et al. fail to disclose or provide any teaching on how these disparate concepts are or may be combined to yield a method comprising *inter alia* electronically organizing entities, having associated cryptographic capabilities, within an organizational structure as roles and maintaining those roles within the organizational structure. While Lampson et al. disclose that principals may have roles, it doesn't follow that Lampson et al. disclose or teach a method of electronically organizing principals within an organizational structure as roles and maintaining those roles within the organizational structure. Indeed, Applicants submit Lampson et al. is very much silent on this and at most discloses an assignment of a role to a principal. Moreover, the disclosure of a certification authority system in Lampson et al. is unavailing as Lampson et al. provides no disclosure or teaching of how the possible organization and maintenance capabilities of the certification authority system are or may be applied to yield a method comprising *inter alia* electronically organizing entities within an organizational structure as roles and maintaining those roles within the organizational structure. In sum, Applicants respectfully submit that the disclosure or teaching of the separate concepts of principals having roles and a certification authority system by Lampson et al. fails to yield the Applicants' method as recited in claim 1 and that therefore claim 1 and its dependent claims are allowable.

With respect to independent claim 16 and its dependent claims 17-51, the Examiner has not specifically responded to the arguments made in Applicants' Amendment filed March 29, 2004 and Response filed September 17, 2004. Therefore, Applicants resubmit that *inter alia* Lampson et al. do not disclose, teach or suggest "maintaining capabilities of entities", such as a role in an organization (*see, e.g.*, claim 19), "maintaining functions of entities", such as an operation by a functionary in an organization (*see, e.g.*, claim 22), "maintaining characteristics of entities", such as an entity's size, threshold for a quorum, or visibility (*see, e.g.*, page 21 of the specification) or "maintaining relationships of entities" as recited in claim 16. Therefore, claim 16 and its dependent claims are allowable.

With respect to independent claim 52 and its dependent claims 53-59 and 61-63, the Examiner has not specifically responded to the arguments made in Applicants' Amendment filed March 29, 2004. and Response filed September 17, 2004. Therefore, Applicants resubmit that *inter alia* Lampson et al. do not disclose, teach or suggest a maintenance system

by which the database, representing entities of an organization and their characteristics, roles and relationships, and the cryptographic authorities are maintained in coordination and by authorized parties assuring the representation of the organization and such that the cryptographic capabilities are soundly associated as recited in claim 52. Therefore, claim 52 and its dependent claims are allowable.

With respect to dependent claim 60, the Examiner has not specifically responded to the arguments made in Applicants' Amendment filed March 29, 2004. and Response filed September 17, 2004. Therefore, Applicants resubmit that *inter alia* that Lampson et al. do not disclose, teach or suggest independent claim 52 from which claim 60 depends and thus Lampson et al. do not disclose, teach or suggest claim 60. Further, the UML specification, on its own or in combination with Lampson et al. plainly fails to provide any disclosure, teaching or suggestion regarding independent claim 52, let alone dependent claim 60. Therefore, claim 60 is allowable.

For at least the above reasons, the rejection of claims 1-4 and 6-63 is traversed and claims 1-4 and 6-63 are allowable.

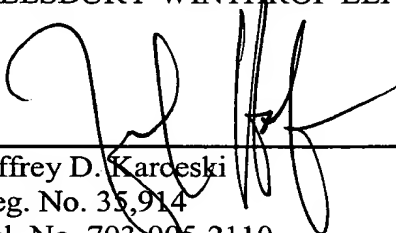
All rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance. If questions relating to patentability remain, the examiner is invited to contact the undersigned to discuss them.

FRANKEL ET AL. -- 09/503,181  
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Should any fees be due, please charge them to our deposit account no. 03-3975, under our order no. 061047/0265650. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced deposit account.

Respectfully submitted,

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